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| 09/667,775 | 09/22/2000 | Hidenori Kawanishi | 717-445P | 8167 |

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| EXAMINER | |
|---|---|
| MONDT, JOHANNES P | |

| ART UNIT | PAPER NUMBER |
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| 2826 | |

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

| Office Action Summary | Application No. | Applicant(s) |
|---|---|---|
| | 09/667,775 | KAWANISHI ET AL. |
| | Examiner | Art Unit |
| | Johannes P Mondt | 2826 |

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 February 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) *21-54* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

## DETAILED ACTION

### *Response to Am ndm nt*

Amendment A filed 02/06/2003 and entered as Paper No. 11 forms the basis of this office action. In Amendment A Applicant substantially amended claims 1-10 and thereby all outstanding claims, either directly or indirectly through independent claims. Presently, claims 1, 4, 5 and 6 are independent. Comments on Remarks by Applicant are included below under "Response to Arguments" but are confined to those aspects that are still relevant to the present, new, claim set.

### *Response to Arguments*

Applicant's arguments as formulated in Remarks in Amendment A have been fully considered but are not persuasive. In particular, claim 1 calls for a resin "having a light diffusion capability". Any resin has a diffusion capability because all atoms therein are scattering centers. The degree in which light is diffused, i.o.w., the mean free path of a photon, is a quantitative issue that is not quantified in the specification. However, in view of the substantial amendment of all claims new art is herewith presented that more closely connects to the new claim language, however, without implying the absence of a light diffusion capability in the references previously cited.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. ***Claims 1-3*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al (JP407072311A) in view of Hirano et al (5,976,175). Nishino et al teach (cf. Figure 5) a semiconductor laser device (cf. second sentence of "Constitution" in English abstract) including:

a semiconductor laser chip 7 (inherent to semiconductor laser) (cf. section [0020]); and

a resin 1a (cf. first sentence of "Constitution" in English abstract), wherein the semiconductor laser chip is covered with the resin (Figure 5) forming a molded lens and wherein the laser light is emitted through said molded lens (first sentence of "Constitution" in English abstract).

*Nishino et al do not necessarily teach* the resin to have a substantial light diffusion capability as a functional additional requirement of the device; however, as shown for instance by Hirano et al, the provision of a light diffusion capability for a molded resin 4 (cf. column 3, line 61) forming a lens and covering the light source in other types of laser devices (other than semiconductor laser devices), in particular fiber-optic lasers, for the specific purpose of providing safety precautions for laser light in applications to the human body (cf. "Background of the Invention", column 1, line 60 – column 2, line 2 and column 3, lines 55-65).

Because the specific generation mechanism of the laser light is immaterial to the teaching by Hirano et al that the laser light should be diffused to prevent damage, there

exists *motivation* to include the teaching by Hirano et al in this regard into the invention as taught by Nishino et al. *Combination* of said teaching with said invention is straightforwardly achieved through proper selection of the resin (light diffusion tip is made of polyamide resin). *Success* in implementing said teaching can therefore be reasonably expected.

*With regard to claim 2:* the semiconductor laser chip 7 in Nishino et al does not directly contact the resin 1a (cf. Figure 5).

*With regard to claim 3:* the semiconductor laser device by Nishino et al further includes a light diffusion plate 1b (cf. first sentence of "Constitution" in English abstract) provided between the semiconductor laser chip 7 and the molded lens 1a.

1. ***Claims 4 and 7*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al (JP407072311A) in view of Hirano et al (5,976,175) and Claisse et al (Electronics Letters Volume 28, No. 21 (1992)).

*Nishino et al teach* (cf. Figure 5) a semiconductor laser device including a semiconductor laser chip 7 covered with resin 1a forming a molded lens.

*Nishino et al do not necessarily teach* the resin to have a substantial light diffusion capability as a functional additional requirement of the device; however, as shown for instance by Hirano et al, the provision of a light diffusion capability for a molded resin 4 (cf. column 3, line 61) forming a lens and covering the light source in other types of laser devices (other than semiconductor laser devices), in particular fiber-optic lasers, for the specific purpose of providing precautions to prevent thermal

damage to the molded resin by the high intensity of the laser light (cf. "Background of the Invention", column 1, line 60 – column 2, line 2 and column 3, lines 55-65).

Because the specific generation mechanism of the laser light is immaterial to the teaching by Hirano et al that the laser light should be diffused to prevent damage, there exists *motivation* to include the teaching by Hirano et al in this regard into the invention as taught by Nishino et al. *Combination* of said teaching with said invention is straightforwardly achieved through proper selection of the resin (light diffusion tip is made of polyamide resin). *Success* in implementing said teaching can therefore be reasonably expected.

*Neither Nishino et al nor Hirano et al necessarily teach* the further limitation that the semiconductor laser chip should include a plurality of light emitting portions. However, the use of multiple quantum wells rather than single quantum wells or bulk wells has long been known to offer the advantage of higher yield over single quantum wells and the advantage of manufacturability at significantly higher precision and perfection than all other structural embodiments of active regions in semiconductor laser chips, as evidenced for instance by Claisse et al; see Figure 2 for the internal quantum efficiency of single quantum wells and multiple quantum wells. Specifically be referred to the greatly improved internal quantum efficiency especially for laser lengths less than about 400 micron. Internal quantum efficiency is advantageous for any semiconductor laser chip.

Whence the *motivation* to include the teaching by Claisse et al in this regard in the invention taught by Nishino et al. The teaching by Claisse et al can be easily

*combined* with the aforementioned invention, because any modification is limited to the active layer embodiment. Therefore, *success* in the implementation of the aforementioned combination can be *reasonably expected.*

*With regard to claim 7:* the control that is the essence of claim 7 is inherent in the device of claim 4: spot size of an emitted light beam is inherently controllable by the size of the light-emitting portion in the semiconductor laser chip (because light is emitted over a larger or smaller area as a result of such adjustment) and the radiation angle of an emitted light beam is inherently controllable through the orientation of said light-emitting portion of the semiconductor laser chip (said orientation determines the direction of the emitting light, said direction being defined with respect to the internal coordinates of the light-emitting portion); furthermore, given their lengths the light-emitting portion can be subjected to adjustment of the intervals between them so as to control the spot size, whereas an orientational adjustment of said interval also implies control of the radiation angle; furthermore, the number or plurality of said light emitting portions, again given their individual dimensions, controls the spot size while the size, material and shape of the molded resin determines the amount of diffusion to which the laser light is exposed after leaving the semiconductor chip, said diffusion determining the path of the photons through scattering, and thus the change in spot size, whilst the direction of the laser beam is determined by the index of refraction of said molded resin, hence on the material constitution of said molded resin. Therefore, the further limitation of claim 7 does not distinguish over the prior art.

2. ***Claims 5 and 8*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al (JP407072311A) in view of Hirano et al (5,976,175 and Hirayama et al (5,970,081).

*Nishino et al teach* a semiconductor laser device including a semiconductor laser chip 7 covered with resin 1a, forming a molded lens.

*Nishino et al do not necessarily teach* the resin 1a to have a (substantial) light diffusion capability (that is functional to the device). However, as shown for instance by Hirano et al, the provision of a light diffusion capability for a molded resin 4 (cf. column 3, line 61) forming a lens and covering the light source in other types of laser devices (other than semiconductor laser devices), in particular fiber-optic lasers, for the specific purpose of providing safety precautions for laser light in applications to the human body (cf. "Background of the Invention", column 1, line 60 – column 2, line 2 and column 3, lines 55-65).

Because the specific generation mechanism of the laser light is immaterial to the teaching by Hirano et al that the laser light should be diffused to prevent damage, there exists *motivation* to include the teaching by Hirano et al in this regard into the invention as taught by Nishino et al. *Combination* of said teaching with said invention is straightforwardly achieved through proper selection of the resin (light diffusion tip is made of polyamide resin). *Success* in implementing said teaching can therefore be reasonably expected.

*Neither Nishino et al nor Hirano et al necessarily teach* the further limitation that the semiconductor laser chip should include at least one light-emitting portion having a

width of about 7 μm or more. However, in the art of semiconductor laser devices a laser chip emitting light through a light-emitting portion with a width of 18 micrometer (cf. column 6, lines 48-55), hence in the range claimed by Applicant, is standard in the art, as witnessed by Hirayama et al (see also Figure 2).

*Motivation* to include the teaching in this regard by Hirayama et al in the invention as essentially taught by Nishino et al and Hirano et al is the consideration that, given the need for a high-power laser beam in total wattage, said need is served by having a wide light-emitting portion and also by reducing peak intensity within said laser beam as it traverses the molded resin that may inflict damage by thermal stress (cf. Hirano et al, column 1, lines 51-59). *Combination* of said teaching with the inventions is easy, because inclusion of the teaching by Hirayama et al maximally only requires the replacement of the actual laser chip by the one taught by Hirayama et al and does not impact on any of the other aspects of Nishino et al or Hirano et al. *Success* in implementing said combination can therefore be reasonably expected.

*With regard to claim 8:* the further limitation as defined by claim 8 is inherent in the device of claim 5: with reference to the discussion of claim 7 as given above and incorporated herein by reference, spot size and radiation angle can be controlled through adjustment of the width of the light-emitting portion irregardless of its width, and thus also for a width of said light-emitting portion of about 7 micron or more; and size, material, and dimension of the molded resin offers supplemental control through the scattering of the photons in said molded resin, whereby the spot size is increased whilst the direction of the light beam depends on the index of refraction, hence on the material

constitution, of said molded resin. Therefore, the further limitation as defined by claim 8 does not distinguish over the prior art.

3. ***Claims 6, 9 and 20*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al (JP407072311A) in view of Hirano et al (5,976,175) and Andrews (5,422,905).

*Nishino et al teach* a semiconductor laser device including a semiconductor laser chip 7 covered with resin 1a forming a molded lens.

*Nishino et al do not necessarily teach* the resin to have a substantial light diffusion capability (functional to the device).

*However, as shown for instance by Hirano et al*, the provision of a light diffusion capability for a molded resin 4 (cf. column 3, line 61) forming a lens and covering the light source in other types of laser devices (other than semiconductor laser devices), in particular fiber-optic lasers, for the specific purpose of providing safety precautions for laser light in applications to the human body (cf. "Background of the Invention", column 1, line 60 – column 2, line 2 and column 3, lines 55-65).

Because the specific generation mechanism of the laser light is immaterial to the teaching by Hirano et al that the laser light should be diffused to prevent damage, there exists *motivation* to include the teaching by Hirano et al in this regard into the invention as taught by Nishino et al. *Combination* of said teaching with said invention is straightforwardly achieved through proper selection of the resin (light diffusion tip is

made of polyamide resin). *Success* in implementing said teaching can therefore be reasonably expected.

*Neither Nishino et al nor Hirano et al necessarily teach* the further inclusion of at least one additional semiconductor laser chip.

*However,* the utility of multiple beam laser diodes has previously been amply recognized, as witnessed, for instance, by Andrews (cf. column 1, lines 13-36), who teaches two closely spaced and aligned semiconductor laser chips 22 and 24 (cf. column 3, line 34-60) providing parallel beams of light (cf. Figure 8).

The invention by Andrews has applicability inter alia to optical disk readers and multi-spot printers (cf. column 1, lines 13-36) and the incorporation of the teaching by Andrews in this regard in the inventions by Ogino et al and Amano et al is *motivated* by enlarging the technology range to which said inventions can be applied. *Combination* of said teaching with said inventions is easily accomplished by aligning another laser chip with the one already in place. *Success* in the implementation is thus *reasonable to expect.*

*With regard to claim 9:* The further limitation as defined by claim 9 is inherent in the device of claim 6: with reference to the discussion of claim 7 as given above and incorporated herein by reference, spot size and radiation angle can be controlled through adjustment of the width of the light-emitting portion; and size, material, and dimension of the molded resin offers supplemental control through the scattering of the photons in said molded resin, whereby the spot size is increased whilst the direction of the light beam depends on the index of refraction, hence on the material constitution, of

said molded resin. Therefore, the further limitation as defined by claim 9 does not distinguish over the prior art.

*With regard to claim 20:* Andrews teaches the semiconductor laser chips 30 to be arranged in parallel (see Figure 8 and abstract). Motivation for inclusion of the teaching by Andrews in this regard into said invention is the obvious advantage of having parallel beams at one's disposal.

4. ***Claims 10-11*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al and Hirano et al as applied to claim 1 above, and further in view of Okuda (6,049,423).

As detailed above, claim 1 is unpatentable over Nishino et al in view of Hirano et al. *Neither Nishino et al nor Hirano et al necessarily teach* the further limitation of claim 10. However, the mixture of resins of different refractive indices so as to bring about enhanced light diffusion has long been practiced in the art of light-emitting devices, as exemplified by Okuda, who teaches the mixing of acrylic resin of index 1.53 with glass or silica resin of index 1.535 for the specific purpose of forming a light diffusion layer 16 (cf. column 4, lines 23-47).

*Motivation* to include the teaching by Okuda in this regard in the invention as essentially taught by Nishino et al and Hirano et al stems from the purpose as stated by Hirano et al to reduce the light intensity (cf. column 1, lines 50-60). *Combination* of said teaching with both inventions is easy: only the material constitution of the resin needs to

be changed. *Success* in the implementation of said combination can therefore be *reasonably expected.*

5. ***Claims 12-13*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al and Hirano et al as applied to claim 1 above, and further in view of either Andrews (5,422,905) and Brooks et al (6,049,125), or in view of Missaggia et al (IEEE Journal of Quantum Electronics 25 (9), pp. 1988-1992 (1989)). As detailed above, claim 1 is unpatentable over Nishino et al in view of Hirano et al. Neither Nishino et al nor Hirano et al necessarily teach the further limitation of claims 12-13. However, as evidenced by Andrews, it is well known in the art of semiconductor laser diode technology to contain the laser diode or diodes in a heat sink 38 (cf. column 3, lines 60-69) made of high thermal conductivity material such as copper, metallized beryllia (BeO), silicon, or diamond. In the case of copper the thermal conductivity is approximately 390 W/m.K. Therefore, the relevant length scale obtained by dividing the relevant surface area by the thickness of the copper that corresponds to the limit of 100 K/W for the thermal resistance as indicated by the further limitation of claim 13 is the common value of approximately 1 mil or greater for said relevant length scale. That this thickness range is in fact common is illustrated by Brooks et al who teach heat sink thicknesses in the range of between 5 and 10 mil (cf. column 3, lines 24-31), hence amply over 1 mil and certainly satisfying the weaker limitation of claim 12.

*Motivation to include the teachings of Andrews and Brooks* in this regard in either the invention as essentially taught by Nishino et al and Hirano et al stems from the

improved heat conductance of the semiconductor laser device; please note that thermal stress is a major concern in Hirano et al (cf. column 1, lines 50-60). Because given the material choice only the selection of the thickness of the heat sink needs to be selected, - and may be selected out of a wide range, said teachings can be easily *combined* with Nishino et al and Hirano et al; *success* in the implementation of said teachings can therefore be *reasonably expected.*

In the alternative, Missaggia et al teach a microchannel heat sink that contains a semiconductor diode laser array by virtue of the latter being bonded to it (cf. title and caption of Figure 1), with a value of 0.04 deg/W per unit area in square cm (cf. page 1990, second column). A 15 degree rise in temperature for a power of 80W (cf. page 1991, second column) in indicated, given the reported density of laser diodes in the array; which is below the upper limit in the further limitation of claim 12.

*Motivation* to include the teaching by Missagia et al in this regard in the invention as essentially taught by Nishino et al and Hirano et al stems from the improved heat extraction offered through the microchannel heat sink as invented by Missaggia et al. The teaching by Missagia et al can be easily *combined* with the device as essentially taught by Nishino et al and Hirano et al by planting the laser device on top of the heat sink plate of Missaggia et al as indicated in Figure 1 without any further impact on other aspects of the inventions. *Success* in implementing the combination can thus be *reasonably expected.*

*Moreover, applicant fails to show* in his disclosure that the range as indicated in claim 12 or the approximate value that is indicated in claim 13 (for the thermal

resistance) is *critical to the invention*. Applicant is reminded that it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

6. ***Claim 14*** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al, Hirano et al and Claisse as applied to claim 4 above, and further in view of Hazell et al (IEEE Journal of Quantum Electronics 34 (12), pp. 2358-2363 (1998)). Although neither Nishino et al nor Hirano et al necessarily mention that the plurality of light-emitting portions of the same semiconductor laser chip emit light beams of the same wavelength, usually the multiple quantum wells generally are repeating units of single quantum wells and thus generally produce light of the same wavelength and hence can be used to produce monochromatic light, for evidenced, for instance, by Hazell et al, who teach a 1.3 micron multiple quantum well laser. As an obvious method to increase the total intensity of the desired monochromatic light all multiple quantum wells could thus be designed to produce light of the same wavelength.

*Motivation* for inclusion of the teaching by Hazell et al in this regard is the possibility to achieve higher overall intensity of the light of a desired wavelength. *Combination* of the teaching by Hazell et al with the device as essentially taught by Nishino et al, Hirano et al and Claisse et al can be easily achieved by employing repeating units of single quantum wells in the implementation of the teachings by

Claisse et al, which would not impact on any other design consideration in said invention. *Success* of said combination can therefore be *reasonably expected.*

7. ***Claims 15 and 17*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al, Hirano et al and Andrews as applied to claim 6 above, and further in view of Sarraf (5,625,402).

*With regard to claim 15:* As detailed above, claim 6 is unpatentable over Nishino et al in view of Hirano et al and Andrews. None of these necessarily teach the further limitation of claim 15. However, Sarraf teaches a plurality of laser diode arrays, each member of the same laser diode array having the same wavelength (cf. claim 1 of Sarraf, column 13, lines 27-54) (different arrays having possibly different wavelengths).

*Motivation* to include the teaching in this regard by Sarraf in the invention as essentially taught by Nishino et al, Hirano et al and Andrews is the increased power derived from a plurality rather than a single laser without concentrating too much thermal waste in a confined area, especially in view of the purpose of Hirano et al to deal with adverse consequences on the resin from the thermal expansion brought on by the heat production due to the laser light (cf. column 2, lines 50-60). *Combination* of the teaching in this regard by Sarraf and either the invention essentially taught by Nishino et al, Hirano et al and Andrews is easily accomplished by selecting the same wavelength for the dual laser diodes as taught by Andrews. Nothing else would have to be changed. *Success* in the implementation of said combination can therefore be *reasonably expected.*

*With regard to claim 17:* Because different arrays of laser diodes emit light of a different wavelength (cf. title and abstract) for color printing applications (cf. column 1, lines 13-54) the further limitation of claim 17 does not distinguish over the prior art either.

8.) ***Claims 16 and 18-19*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al (JP407072311A), Hirano et al (5,976,175) and Claisse et al (Electronics Letters Volume 28, No. 21 (1992)) as applied to claim 4 above, and further in view of Kudo et al (ISBN: 0-85296-697-0). As detailed above, claim 4 is unpatentable over Nishino et al in view of Hirano et al and Claisse et al, who, however, do not necessarily teach the further limitation of claim 16. However, for the specific purpose of achieving an *expansion of the* wavelength band covered by the semiconductor laser chip Kudo et al teach multiple quantum well layers within the same multiple quantum well to emit different wavelengths depending on their lengths, thus covering the spectral range comprising the range between 1.44 micron and 1.59 micron (cf. title, abstract, first sentence, and page 50, third paragraph).

*Motivation* to include the teaching by Kudo et al in this respect in the invention as essentially taught by Nishino et al, Hirano et al and Claisse stems from the circumstance that aforementioned expansion is useful for applications to the increase of optical communication system transmission capacity (cf. Introduction), to which said invention could thus be advantageously applied. *Combination* of the teaching in this respect by Kudo et al with said invention is easily accomplished by variation of the

length of the quantum wells within the multiple quantum well structure, which does not impact on any other design consideration. *Success* in implementing said combination can therefore be *reasonably expected.*

*With regard to claims 18-19:* the wavelength of the light beam emitted by the semiconductor laser chip of Kudo et al is indeed selected from the vicinity of about 1.4 micron (cf. page 50, third paragraph) as well as from a vicinity of 1.5 micron (loc. cit.); therefore, the further limitations of claims 18-19 do not distinguish over the prior art either.

## *Conclusion*

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P Mondt whose telephone number is 703-306-0531. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 703-308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JPM
April 14, 2003

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800